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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,646	04/02/2004	Marc Moessinger	1038-011746-US	1044

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SIDDIQUI, SAQIB JAVAID	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,646	MOESSINGER ET AL.	
	Examiner	Art Unit	
	Saqib J. Siddiqui	2117	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 17-26* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response was received and entered June 25, 2007.

- Claims 1-15 & 17-26 are pending.
- Claims 1 and 25 are amended.
- Application is currently pending.

Response to Amendment

Applicant's arguments and amendments with respect to amended claims 1-15 & 17-26 filed June 25, 2007 have been fully considered but they are moot under new grounds of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 9-10, 13-15 and 19-21 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Hui et al. US Pat no. 4,660,170.

As per claims 1, 17 and 21:

Hui et al teaches a coupling unit adapted to be coupled between a first and a second unit to be tested (Figure 3, column 1, lines 5-15), said coupling unit comprising a first signal path that is adapted to provide a signal connection (Figure 3 "P4 → P2) between at least one terminal of the first unit to be tested (Figure 3, "42d") and at least

one terminal of the second unit to be tested (Figure 3, "57d"); with said first signal path comprising a signal conditioning facility adapted for receiving a first signal from the first unit to be tested (Figure 3 # 42), for conditioning said first signal in accordance with predefined parameters, and for providing the conditioned first signal to the second unit to be tested (column 4, lines 60-65); said coupling unit further comprising a second signal path opposite the first signal path (Figure 3 "P1 → P3) that is adapted to provide a signal connection between the at least one terminal of the second unit to be tested and at least one terminal of the first unit to be tested (column 6, lines 30-65); first switching facilities adapted for switching the signal path so as to select a signal of said first signal path or said second signal path (Figure 3 # 38).

As per claim 2:

Hui et al. teaches the coupling unit as rejected in claim 1 above, comprising at least one of the features: said first signal path is adapted for substantially preserving the first signal's information content (column 3, lines 1-10); the transmission properties of the first signal path are determined by said predefined parameters; said first signal is implemented as a single-ended signal (column 3, lines 15-40).

As per claims 9-10:

Hui et al. teaches the coupling unit as rejected in claim 1 above, wherein said first signal path is adapted to provide a differential signal connection for transmitting a differential signal comprising a normal signal and a complementary signal being complementary to the normal signal (Figure 8, column 9 lines 19-25) and the signal conditioning facility is adapted for deriving a common mode signal from the differential

signal (column 8, lines 10-30); the signal conditioning facility is adapted for deriving a common mode signal from the differential signal (column 6, lines 40-65).

As per claims 13-15:

Hui et al. teaches the coupling unit of claim 1, comprising second switching facilities adapted for switching between said first signal path and a wire loop adapted for bypassing the signal conditioning facility of the first signal path (Figure 3 # 29), comprising third switching facilities adapted for switching the signal path in a way that at least one terminal of one of the units to be tested is connected with an external resource (column 5, lines 15-35), in particular with an external channel and a second conditioning facility (Figure 3 # 57, column 7, lines 10-20).

As per claims 19-20:

Hui et al. teaches the coupling unit of claim 17, wherein said signal conditioning facility is adapted for degrading the first signal traveling on said first signal path until the conditioned first signal is no longer correctly received by the second unit to be tested (column 10, lines 10-35), wherein said first signal conditioning facility is adapted for degrading the first signal traveling on said first signal path by at least one of varying the at least one output level of the conditioned first signal (column 6, lines 40-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8, 11-12, 17-18 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muris et al. US Pat no. 5,781,559 and further in view of Hui et al. US Pat no. 4,660,170.

As per claims 1, 17 and 21:

Muris et al. substantially teaches a coupling unit adapted to be coupled between a first and a second unit to be tested (column 1, lines 5-15), said coupling unit comprising a first signal path that is adapted to provide a signal connection (Figure 2 # 21a) between at least one terminal of the first unit to be tested (Figure 2, "I") and at least one terminal of the second unit to be tested (Figure 2, "II"); with said first signal path

comprising a signal conditioning facility adapted for receiving a first signal from the first unit to be tested (column 4, lines 50-60), for conditioning said first signal in accordance with predefined parameters, and for providing the conditioned first signal to the second unit to be tested (column 4, lines 60-65); said coupling unit further comprising a second signal path that is adapted to provide a signal connection between the at least one terminal of the second unit to be tested and at least one terminal of the first unit to be tested (claim 1); first switching facilities adapted for switching the signal path so as to select a signal of said first signal path or said second signal path (Figure 2 # 23).

Muris et al. does not explicitly teach the use the direction of the second signal path to be opposite to the first signal path.

Hui et al. in an analogous art teaches two units under test with opposite direction signal paths (Figure 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a bidirectional bus to test the two units in Muris et al., since doing so would enable the test apparatus to test both units in one test procedure and isolate the error in the apparatus in a more efficient manner. Further, the Supreme Court has held that "a patent for a combination which only unites old elements with no change in their respective functions...obviously withdraws what is already known into the field of its monopoly and diminishes resources available to skillful men...The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." KSR Int'l Co. v. Teleflex Inc., 2007 U.S. LEXIS 4745, (U.S. 2007).

As per claim 2:

Muris et al./Hui et al. teaches the coupling unit as rejected in claim 1 above, comprising at least one of the features: said first signal path is adapted for substantially preserving the first signal's information content (Muris, column 3, lines 1-10); the transmission properties of the first signal path are determined by said predefined parameters; said first signal is implemented as a single-ended signal (column 3, lines 15-40).

As per claim 3:

Muris et al./Hui et al. teaches the coupling unit as rejected in claim 1 above, wherein said signal conditioning facility comprises a comparator unit adapted for comparing said first signal, or a signal derived therefrom, with a predefined threshold level, whereby said threshold level is set in accordance with said predefined parameters (column 5, lines 35-50).

As per claim 4:

Muris et al./Hui et al. teaches the coupling unit as rejected in claim 1, wherein said signal conditioning facility comprises a delay unit (Muris, column 5, lines 50-65), preferably a variable delay unit, adapted to provide a delay for a signal traveling on the first signal path.

As per claim 5:

Muris et al./Hui et al. teaches the coupling unit as rejected claim 4, comprising at least one of the features: the coupling unit further comprises a control unit adapted for controlling the delay of said delay unit (Muris, Figure 2 # 10); the coupling unit further comprises a control unit adapted for controlling the delay of said delay unit by applying a control signal for modifying the delay over the time; the delay induced by said delay

unit is controlled in order to vary at least one of a set-up time and a hold time of a digital data signal, wherein the set-up time represents a time between a start of a valid data signal and a start of a valid clock signal, and the hold time represents a time between the start of the valid clock signal and an end of the valid data signal.

As per claim 6:

Muris et al./ Hui et al. teaches the coupling unit as rejected in claim 1, wherein skew is imposed on the first signal by setting the delay of the first signal path according to a skew signal (Muris, Figure 3), with said skew being imposed in accordance with said predefined parameters.

As per claim 7:

Muris et al./ Hui et al. teaches the coupling unit as rejected in claim 1, wherein jitter is imposed on the first signal by setting the delay of the first signal path according to a skew signal, with said skew being imposed in accordance with said parameters (Muris, Figure 3).

As per claim 8:

Muris et al./ Hui et al. teaches the coupling unit as rejected in claim 1, wherein said first signal path is adapted to provide a single-ended signal connection (Muris, Figure 2 # 22).

As per claim 11:

Muris et al./ Hui et al. teaches the coupling unit as rejected in claim 1, wherein said signal conditioning facility comprises a driver adapted for transforming said first signal, or a signal derived therefrom, into an output signal with at least one output level (Muris, Figure 2, "TDO"), whereby said at least one output level is set in accordance

with said predefined parameters.

As per claim 12:

Muris et al./ Hui et al. teaches the coupling unit as rejected in claim 1 above, comprising at least one of the features: the second unit to be tested is substantially complementary in function to the first unit to be tested; the first and second units to be tested are comprised by either one device or each by a different device (Muris, column 4, lines 25-45); the coupling unit is a loop-back unit; at least one of the units to be tested comprises a physical interface, in particular a serial interface such as PCI Express, HyperTransport, Serial ATA, Rapid IO, FibreChannel, Embedded SerDes, XAUI, with at least one of the terminals of the units to be tested being part of said physical interface.

As per claim 17:

Muris et al./ Hui et al. teaches a testing system adapted for testing at least one of a first and a second unit to be tested, comprising at least one coupling unit of claim 1 that is coupled between the first and the second unit to be tested (column 6, lines 5-45), a signal analysis unit (Muris, Figure 2 # 28).

As per claim 18:

Muris et al./ Hui et al. teaches the testing system as rejected in claim 17, further comprising a signal source, in particular a pattern generator, adapted to provide the stimulus signal to the first unit to be tested (Muris, Figure 2, "TMS").

Claims 21-26 are directed to the coupling unit of the test system of Claims 1-8, 11-12 and 17-18. Muris et al. and Hui et al. teach, either alone or in combination as stated above, the system as set forth in the claims above. Therefore, Muris et al. and Hui et al. also teach either alone or in combination as stated above the coupling as set forth in Claims 21-26.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saqib J. Siddiqui whose telephone number is (571) 272-6553. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Saqib Siddiqui
Art Unit 2138
07/25/2007

GUY LAMARRE
PRIMARY EXAMINER